No. 855,679. PATENTED JUNE 4, 1907.

H. G. VOIGHT.

LOCK AND LATCH MECHANISM.

APPLICATION FILED MAR. 13, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

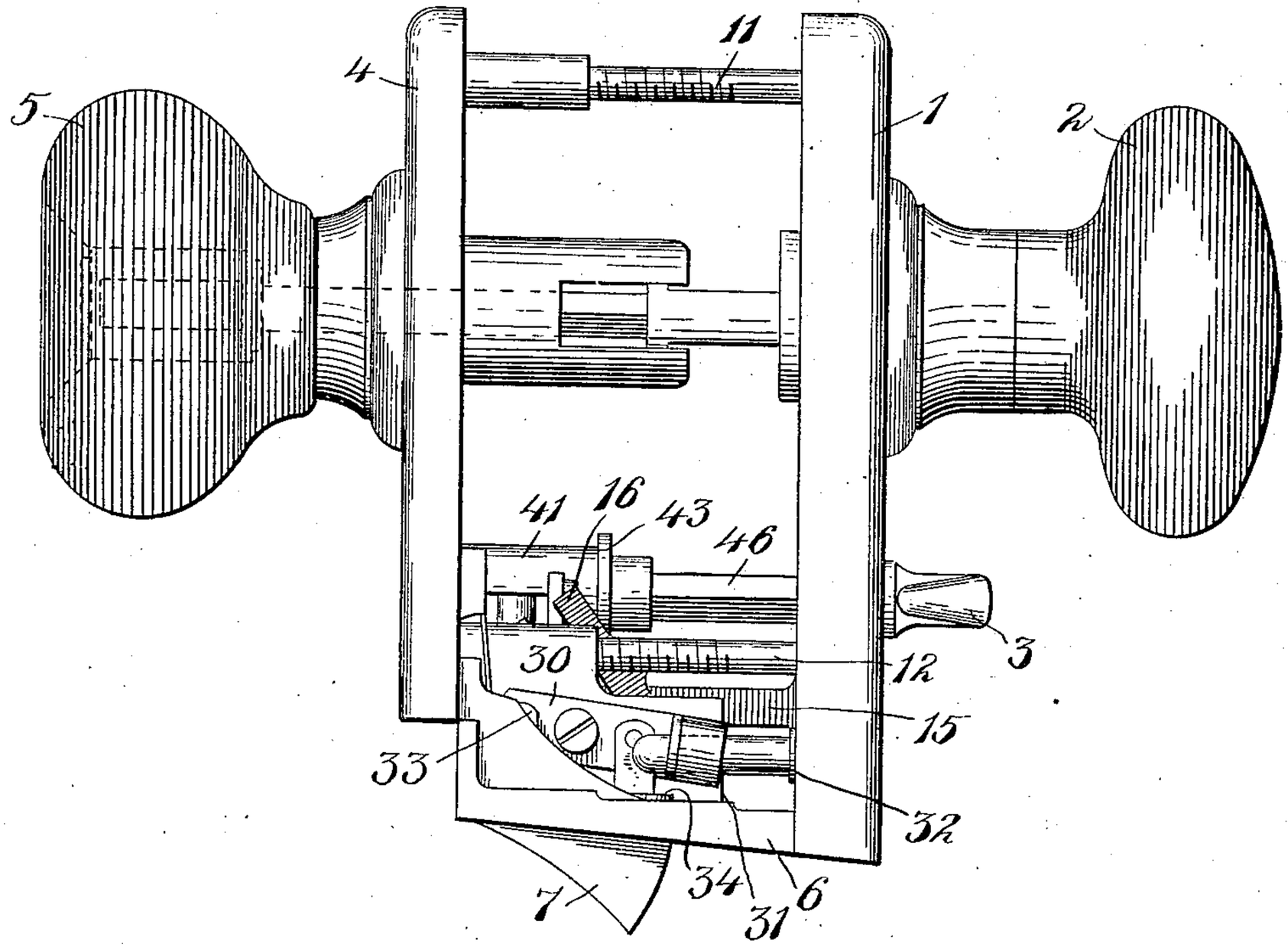
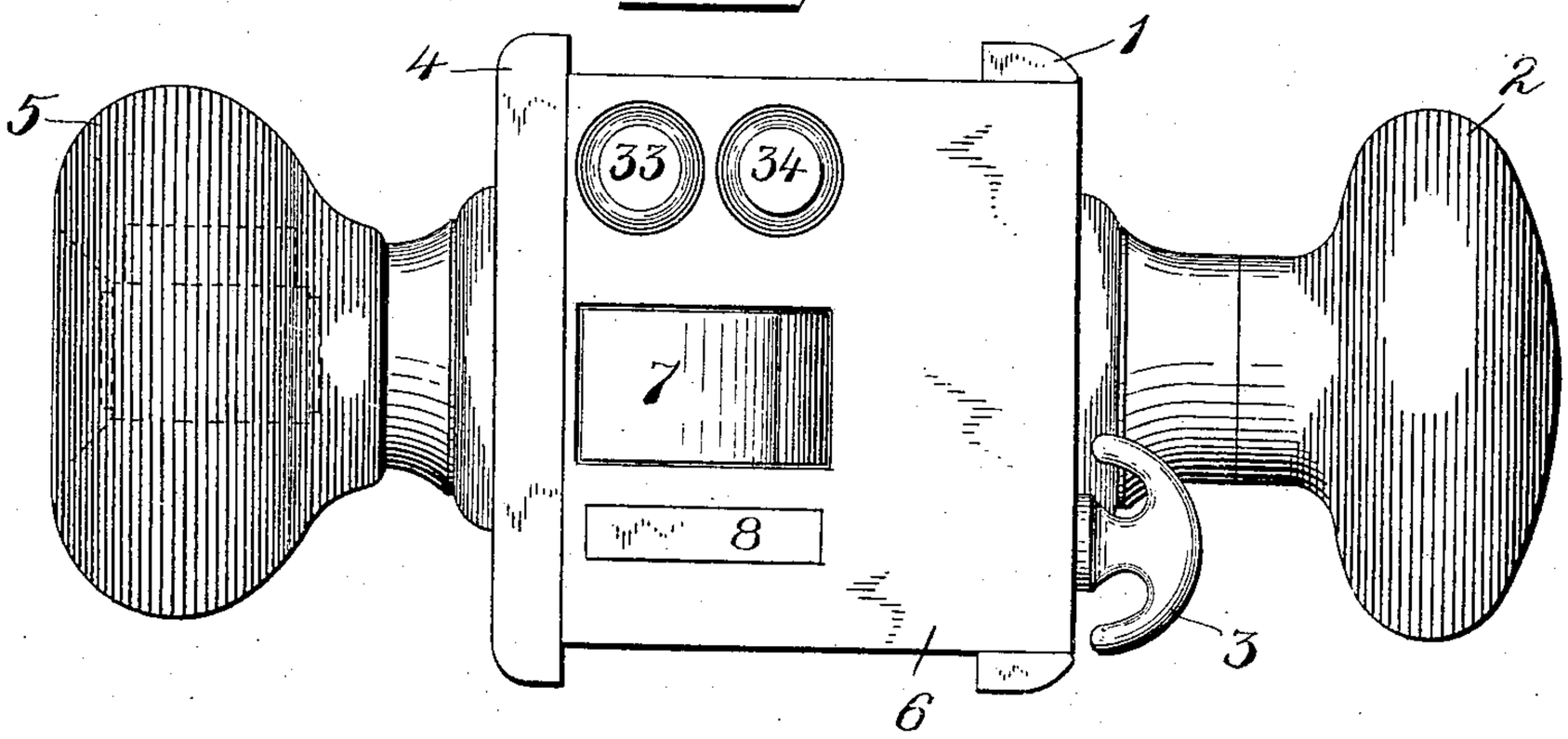


Fig. 2.



Witnesses
Chas. A. Pyard
H. P. Sullivan.

Inventor
H. G. VOIGHT
By his Attorneys
Baldwin, Wright & Baldwin

No. 855,679. PATENTED JUNE 4, 1907.

H. G. VOIGHT.

LOCK AND LATCH MECHANISM.

APPLICATION FILED MAR. 13, 1906.

3 SHEETS—SHEET 2.

Fig. 3.

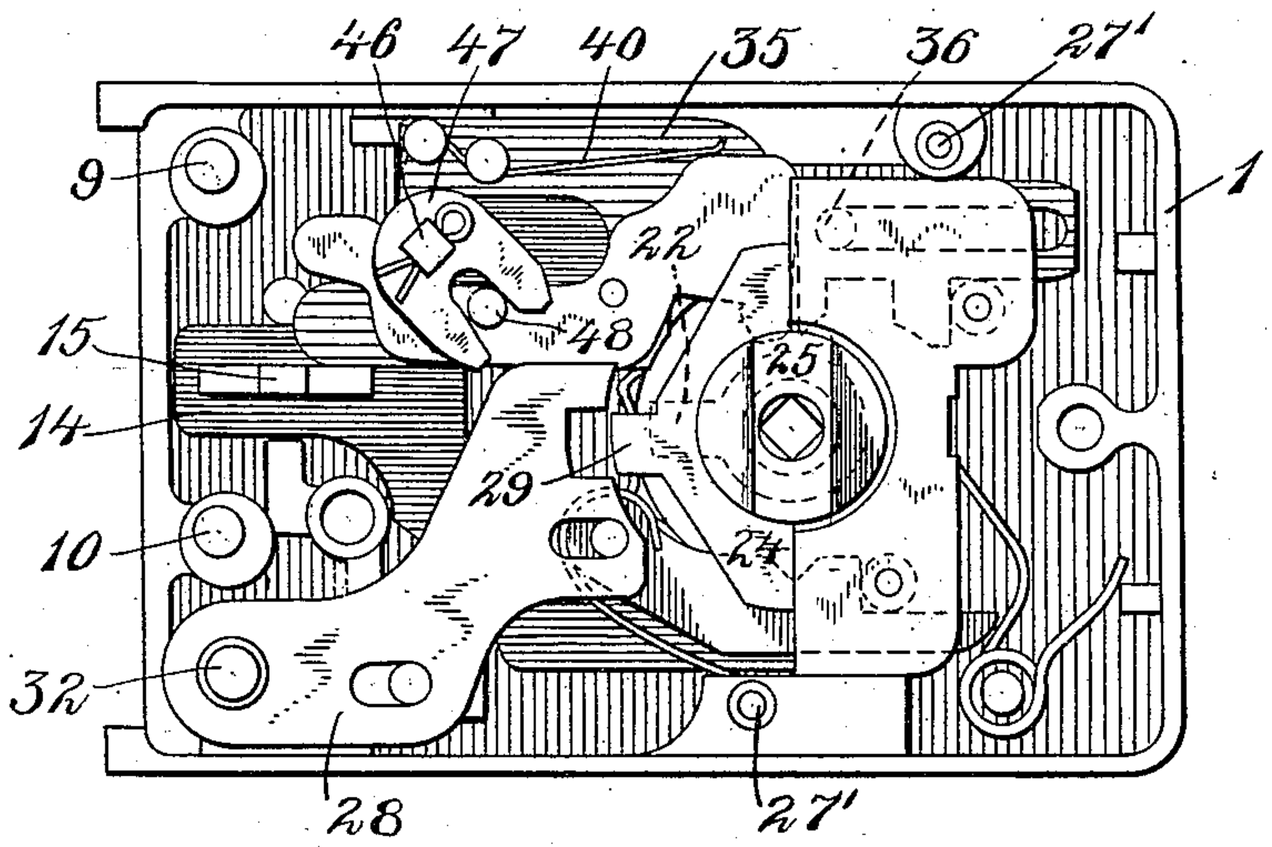


Fig. 4.

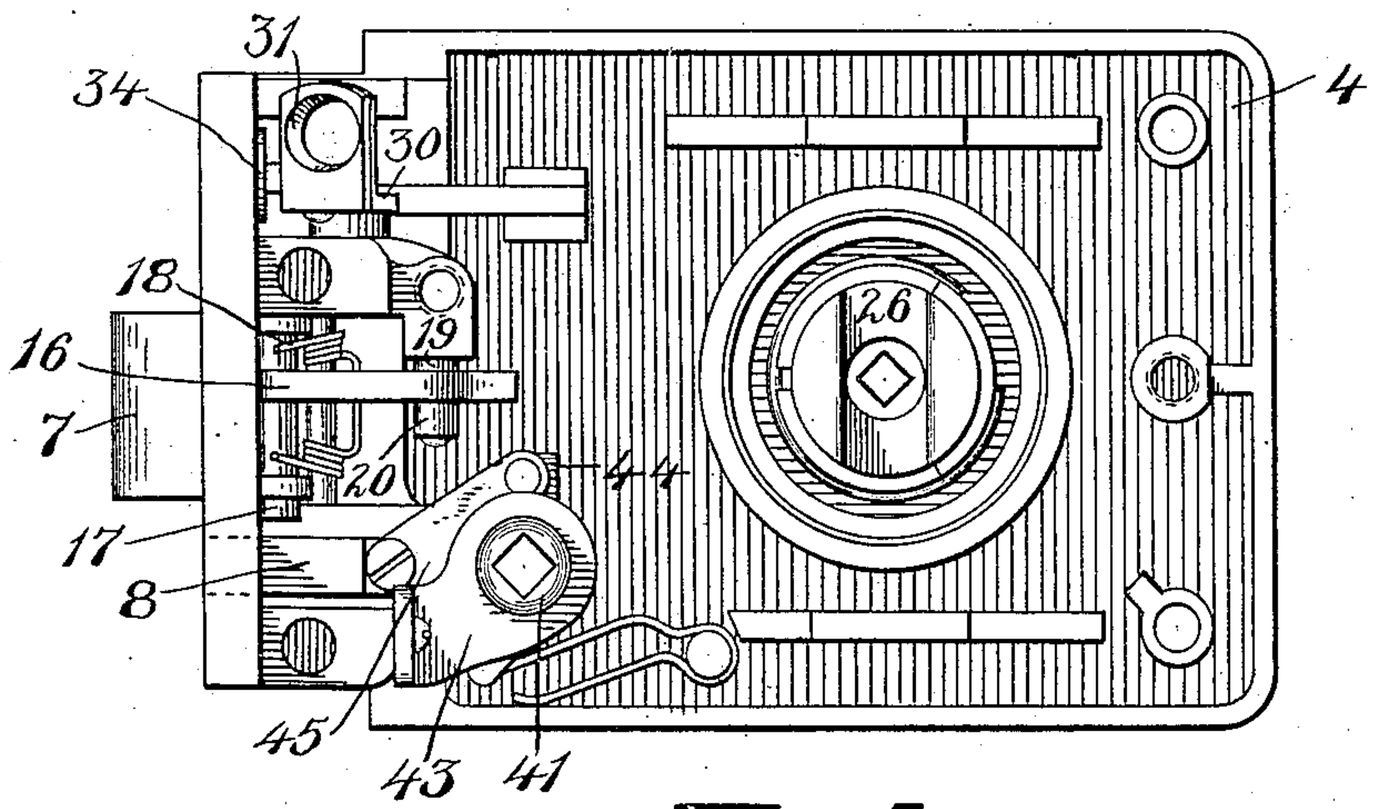
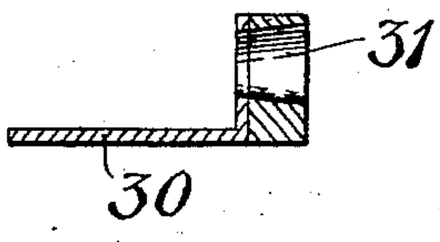


Fig. 5.



Witnesses

Inventor

H. G. VOIGHT

By his Attorneys

No. 855,679. PATENTED JUNE 4, 1907.

H. G. VOIGHT.

LOCK AND LATCH MECHANISM.

APPLICATION FILED MAR. 13, 1906.

3 SHEETS—SHEET 3.

Fig. 6.

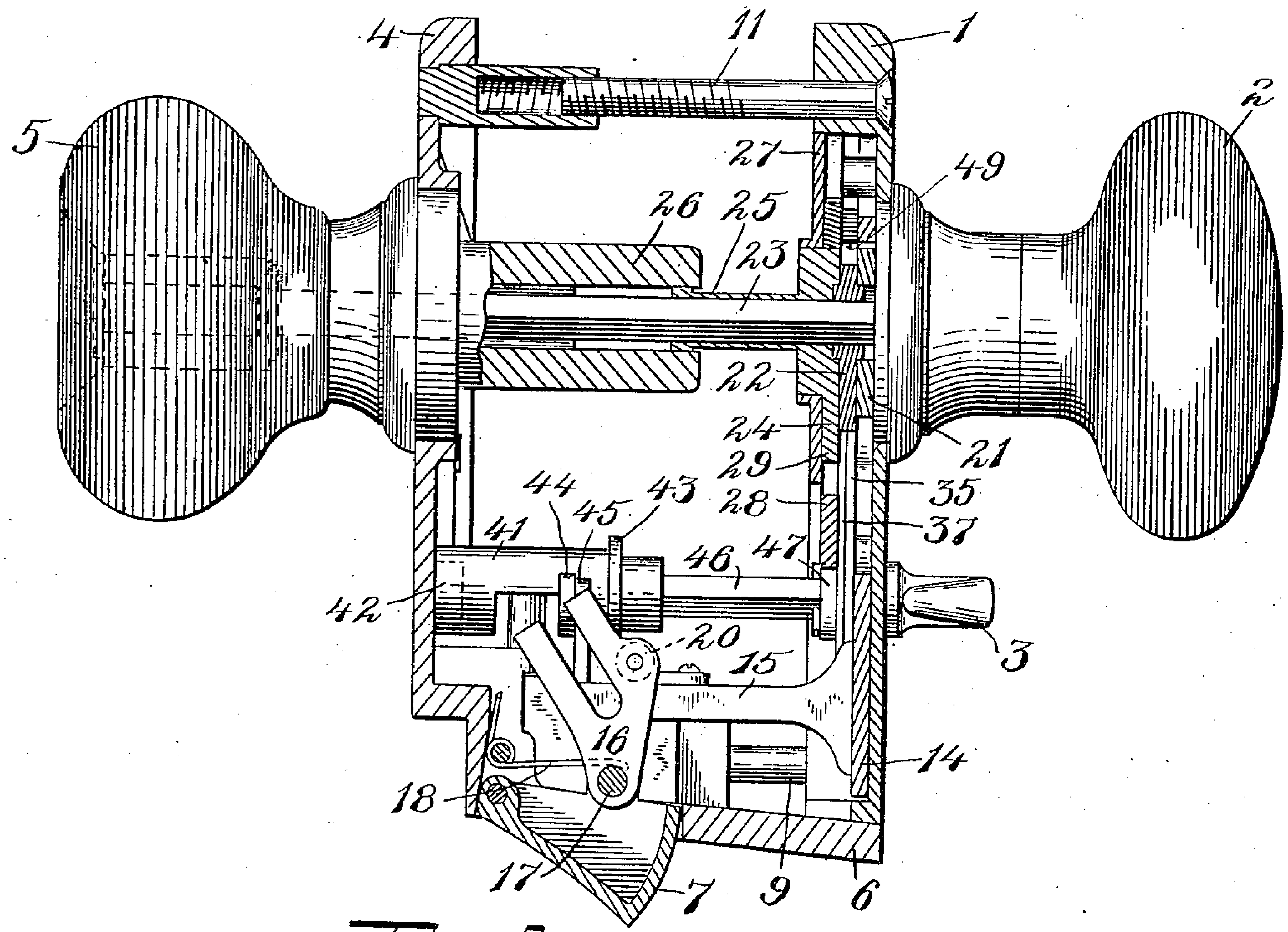


Fig. 8.

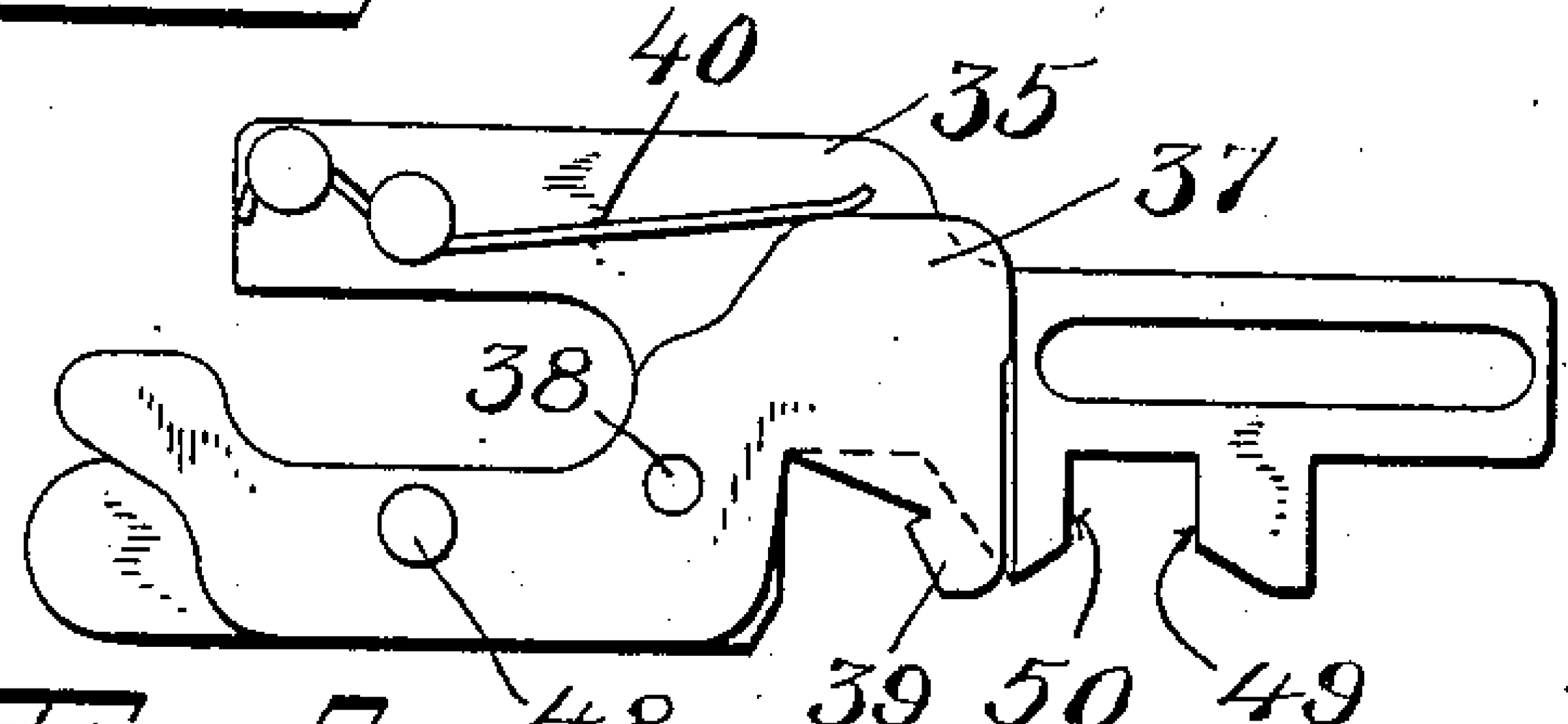


Fig. 9.

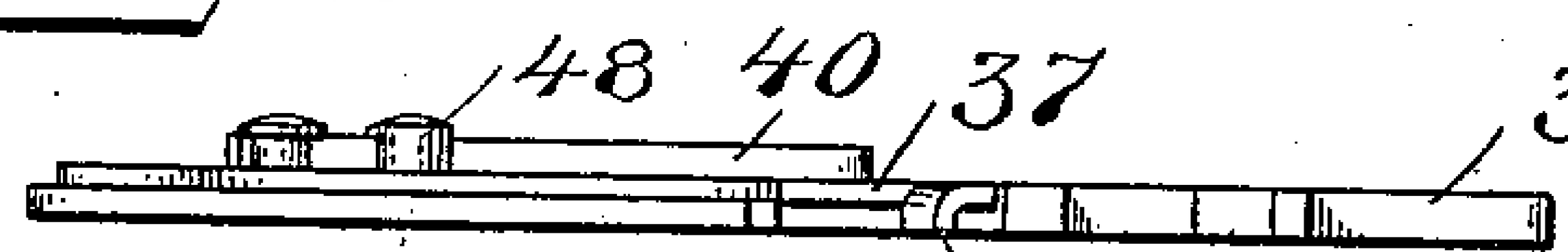
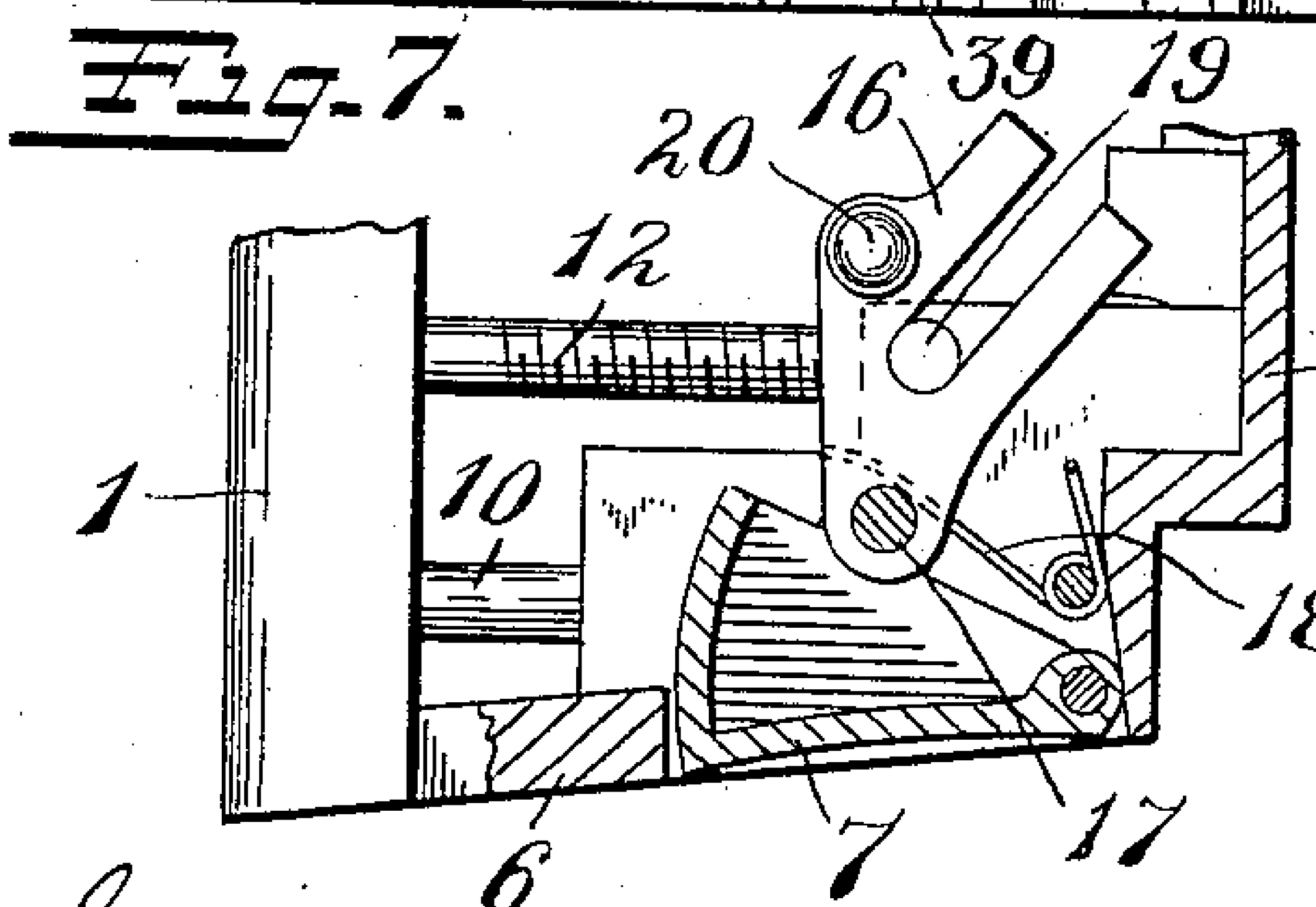


Fig. 7.



Witnesses

Inventor

H. G. VOIGHT

By his Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK AND LATCH MECHANISM.

No. 855,679. Specification of Letters Patent. Patented June 4, 1907.

Application filed March 13, 1906. Serial No. 305,758.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, Connecticut, have invented certain new and useful Improvements in Lock and Latch Mechanism, of which the following is a full, clear, and exact description.

My invention relates to lock and latch mechanism.

The mechanism herein illustrated as embodying the improvements of my invention is particularly designed for use as what is termed a front door lock. It will be seen, however, on inspection, that details of construction are adapted to other types of locks.

The improvements reside in the general construction wherein facility of operation is provided and the possibility of tampering eliminated. The mechanism in its preferred form has knobs attached to side plates which are adjustable to doors of different thicknesses. The principal operating mechanism for retracting the bolts is carried by the inner side plate, while the latch bolt and dead bolt and the night latch operating mechanism are carried by the outer side plate. In the particular form illustrated, the key mechanism proper is located in the outer knob and is connected to a spindle with a roll-back for operating the latch bolt and the dead bolt. Improvements will be noted in the details of the latch mechanism, in the mounting of the roll-backs, in the connection between the outer knob and the roll-backs, and in the mechanism for retracting the latch bolt and dead bolt.

Figure 1 is a plan view of a lock and latch mechanism embodying the improvements of my invention. Fig. 2 is an end view of the same. Fig. 3 is a view of the inner side of the inner side plate with the attached mechanism, the cover or retaining plate customarily employed being removed said plate being upside down relatively to Fig. 2. Fig. 4 is a view of the inner side of the outer side plate with attached mechanism. Fig. 5 is a detail view of part of the night latch operating mechanism. Fig. 6 is a plan view and partial section of the mechanism. Fig. 7 is a fragmentary view showing the latch bolt in section and the under side of the latch tail. Fig. 8 is a detail view of the slide by which the latch bolt and dead bolt are retracted when the key is used in the outer knob. Fig. 9 is a side view of the same.

The inner side plate 1 carries the inner knob 2, and the thumb piece 3 for the dead bolt mechanism. This inner side plate is recessed or hollowed out at its inner side for the purpose hereinafter described. The outer side plate 4 carries the outer knob 5, which latter contains the usual cylinder lock. Formed as an integral part of the inner side plate is the end plate 6, which is adapted to extend across the edge of a door and register with the end of the inner side plate, as shown in Figs. 1 and 2. The latch bolt 7 and dead bolt 8 are mounted back of the end plate and adapted to protrude through openings therein. The alinement between the inner and outer side plates is preserved by the pins 9 and 10 which fit into corresponding sockets back of the end plate. 11 and 12 are screws adapted to draw the side plates together and hold them securely in position on the door. Other screws may be provided for attaching the side plates directly to the door, as is customary in this type of lock.

14 is the main latch slide, which is housed in the recess in the inner side plate. This slide 14 has a lateral projecting member 15.

16 is the latch tail pivoted on the pin 17 which is carried by the latch bolt, and the lower end of which prevents the outward movement of the latch bolt, the parts being under tension of the spring 18.

19 is a stop which serves as a guide for the slotted latch tail and limits its inward retraction as well as the inward retraction of the latch bolt. The stud 20 carried by the latch tail stands back of the lateral projection 15 of the latch slide, and through this connection the latch bolt is retracted when the latch slide is retracted.

21 is a roll-back secured to the shank of the outer knob in the usual manner and adapted to coact with the latch slide for the purpose of retraction. This roll back is likewise housed in the recess in the inner side plate. 22 is a second roll-back also housed in said recessed inner side plate and adapted to be operated by the spindle 23 of the cylinder

lock. This roll-back has two hubs, one of which is centered in the roll-back 21, and the other of which projects into a corresponding recess in the roll-back 24 for the outer knob.

25 is a flat shank or extension preferably cast integral with the roll-back 24 and adapted to telescope with the slotted shank 26 of the outer knob.

27 is the cover plate which centers the outer roll-back and holds the parts of the mechanism in place in the recessed portion of the inner side plate. This cover plate may be of any suitable form and is preferably attached to the inner side plate at the points 27′ 27′ by means of screws which it is unnecessary to illustrate. Both of the roll-backs 21 and 24 are adapted to engage with the slide 14.

28 is a dogging slide also housed in the recess in the inner side plate and having a notch corresponding to the projection 29 on the outer roll-back.

30 is a tilting lever carried by the outer side plate member and having a tapered recess 31 into which the pin 32 of the dogging slide is adapted to protrude when the parts are in their assembled position.

33 and 34 are push buttons accessible through the end plate 6 and connected to the tilting lever 30 for the purpose of operating it. When the button 33 is in, the night latch mechanism is "off," and when the button 34 is in, the night latch mechanism is "on," since the outer knob is dogged through the medium of its roll-back 24. When the night latch is "on," however, the latch bolt 7 may be retracted by the use of a key in the cylinder lock of the outer knob.

35 is what may be termed a lock slide, in distinction from the latch slide 14. This has a slotted shank in which the pin 36 of the latch slide 14 fits.

37 is a tilting coupler plate pivotally mounted on the stud 38 of the slide 35 and having a downward projection 39. This plate 37 is held in its position by a spring 40. When the night latch is "on," if a key is inserted in the cylinder lock in the outer knob and turned, the spindle 23 will rotate the roll-back 22, shown dotted in Fig. 3. This roll-back strikes against the projection 39, tilts the plate 37 and retracts the bolt slide 35, which carries with it on this movement the latch slide 14 through the medium of pin 36 and thus retracts the latch bolt 7.

41 is a hub pivotally mounted on the stud 42 of the outer side plate and in the bearing 43. This hub has an arm 44 which is connected to the dead bolt 8 by the link 45.

46 is the spindle connected to the thumb piece 3 and through the medium of which the dead bolt is extended and retracted.

47 is a U-shaped yoke carried by the spindle 46, which in the normal position of the parts, as shown in Fig. 3, embraces the stud 48 of the two-part lock slide. This stud is carried by the tilting coupler 37 on the slide 35. When the dead bolt 8 is extended by the operation of the thumb piece 3, the rotation of the spindle 46 and yoke 47 draws the lock slide out. Under such conditions a person wishing to open the door to which the mechanism is attached inserts the key in the outer knob and rotates the spindle 23 and roll-back 22. The lock slide being in its outward position, the arm of the roll-back 22 when rotated backward, strikes against the shoulder 49 and retracts the lock slide, thus rotating the spindle 46 through the medium of the pin and yoke connection, so that the dead bolt is now retracted. The continued rotation in the same direction of the roll-back 22 brings its arm into engagement with the shoulder 39 of the tilting coupler 37, when the parts are in the position shown in Fig. 3, and disconnects pin 48 from yoke 47, thus permitting the retraction of the latch slide 14 by the further movement of the key spindle. When the key is released the slide 14 is moved forward by its spring and then the spring 40 brings the plate 37 with its pin back into engagement with the yoke 47. The dead bolt may be shot by the operation of the key by simply rotating the roll-back 22 until its arm strikes the shoulder 50 of the lock slide. Continued rotation moves the slide outward and thus extends the dead bolt.

What I claim is:

1. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable with said plates, an end plate carried by the outer side plate, a latch bolt and a dead bolt carried by and adapted to extend through said end plate, a lock slide and a latch slide carried by and contained in a recess in the inner wall of the inner side plate, and means of connection between said slides and said bolts.

2. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, an end plate carried by one side plate, a latch bolt protruding therethrough, a latch slide carried by the other side plate, two independent roll-backs adapted to retract said slide, one of said roll-backs being connected to one knob and the other roll-back having an extended shank, an extended shank carried by the other knob, one of said extended shanks being flattened and the other having a corresponding slot for telescopic connection.

3. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, an end plate rigidly carried by the outer side plate, a thumb piece carried by the inner side plate, a dead bolt and a latch bolt carried by the outer side plate, a hub carried

by the outer side plate, telescopic spindle connection between said hub and said thumb piece, a latch slide carried by and contained in a recess in the inner wall of the inner side plate, and means of connection between said slide and said latch bolt.

4. In a lock and latch mechanism, inner and outer side plates, knobs carried thereby, an end plate carried by the outer side plate, a latch bolt protruding therethrough, a latch slide carried by the inner side plate, independent means of connection between said knobs and said latch slide, a dogging plate carried by the inner side plate for preventing operation of the outer knob, a pin projecting laterally from said dogging plate, a tilting lever carried by the outer side plate, operating buttons therefor, said tilting lever having a head with a conical recess or passage for said pin.

5. In a latch mechanism, inner and outer side plates, a latch bolt, a slotted latch tail pivotally connected thereto, a stop carried by the outer side plate operating in the slot of the latch tail to limit its inward movement, a latch slide carried by the inner side plate, a lateral extension therefrom engaging said latch tail, knobs carried by said side plates, and means of connection between said knobs and said latch slide.

6. In a latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, a latch bolt and a dogging bolt carried by the outer side plate, means for extending the dogging bolt, a latch slide, means of connection with the latch bolt, a lock slide, means of connection with said dead bolt, independent roll-backs for the inner and outer knobs adapted to operate the latch slide, and a spindle-operated roll-back for co-operating with the lock slide to retract the dead bolt and the latch bolt said slides and roll-backs being contained in a recess in the inner wall of the inner side plate.

7. In a lock and latch mechanism, a latch bolt, a dead bolt, inner and outer knobs adjustable to and fro, independent roll-backs therefor, night latch mechanism for dogging the operation of the outer roll-back, a key-operable roll-back centered by the knob roll-backs, and means operable thereby for retracting the latch slide when the outer roll-back is dogged.

8. In a lock and latch mechanism, a latch bolt, a dead bolt, inner and outer knobs adjustable to and fro, means of connection normally operable for retracting the latch bolt by either of said knobs, means for extending the dead bolt, and a key-controlled slide for retracting both the dead bolt and the latch bolt.

9. In a lock and latch mechanism, a latch bolt, a dead bolt, inner and outer knobs, operable means of connection between the knobs and the latch bolt, a key-operable spindle for the outer knob, a roll-back for said spindle, a lock slide adapted to be operated thereby, means of connection between said lock slide and said knob, operable latch retracting means, means of connection between said lock slide and said dead bolt, and means for disconnecting said lock slide from said dead bolt when the dead bolt has been retracted.

10. In a lock and latch mechanism, a latch bolt, a dead bolt, a slide for retracting the latch bolt, a lock slide normally connected to said dead bolt, and key-operable means for disconnecting said slide from said dead bolt.

11. In a lock and latch mechanism, a latch bolt, a dead bolt, knob-operable means for retracting the latch bolt, manually operable means for extending and retracting the dead bolt, a lock slide including a tilting lever, a projection carried thereby, a U-shaped yoke movable with said dead bolt operating means, said projection normally extending into the opening in said yoke, and means for retracting said projection from said yoke to disconnect said lock slide from said dead bolt mechanism.

12. In a lock and latch mechanism, a latch bolt, a dead bolt, a latch slide, a locking slide, means for operating said dead bolt including a U-shaped yoke, and key-operable means for disconnecting said lock slide from said yoke and retracting said slides.

13. In a latch mechanism, a pair of side plates, knobs carried thereby and adjustable to and fro, a latch slide carried by one side plate, means of connection between said knob and latch, a latch bolt carried by the other side plate, a latch tail pivotally connected to said latch bolt, a stationary pin acting in a slot in said latch tail to limit the inward movement of said latch and bolt.

14. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, an end plate carried by one of said side plates, a latch bolt carried by said end plate, a slide connection and coöperating roll-backs carried by the side plate adapted to the inner side of the door, and a sliding connection between the outer knob and one of said roll-backs.

15. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, an end plate carried by one of said side plates, a latch bolt carried by said end plate, a slide connection and coöperating roll-backs carried by the side plate adapted to the inner side of the door, a sliding connection between the outer knob and one of said roll-backs, a key-controlled spindle concentric with the axis of the outer knob and operatively connected with one of said roll-backs, said key-

controlled spindle passing through the spindle of the outer knob and extending across the space between the two side plates.

16. In a lock, an external and internal side plate, an end plate, a latch bolt and a dead bolt therein, independent roll-backs carried by one of said plates, independent knobs carried by said plates and connected respectively with said independent roll-backs, latch slide mechanism operatively connecting the latch bolt with both of said roll-backs, a third roll-back independent of the first two, a key-controlled spindle for operating the same from the outside of the door and through the outer knob, means operatively connecting the third roll-back with said dead bolt, and an operative connection between the last mentioned means and the latch slide for retracting the latter through the meduim of the key after the dead bolt has been retracted, said means including a two-part slide, one part reciprocating, the other part being carried thereby and tilting thereon.

17. In a lock and latch mechanism, a latch bolt, a dead bolt, a latch slide for retracting the latch bolt, a lock slide for advancing and retracting the dead bolt, and means for operatively connecting the lock slide with the latch slide when the dead bolt has been retracted for the purpose of retracting the latch slide by the further retraction of the lock slide.

18. In a lock and latch mechanism, a latch bolt, a dead bolt, a latch slide for retracting the latch bolt, a lock slide for advancing and retracting the dead bolt, means for operatively connecting the lock slide with the latch slide when the dead bolt has been retracted for the purpose of retracting the latch slide by the further retraction of the lock slide, and means independent thereof for advancing or retracting the dead bolt from the inner side of the door only.

19. In a lock and latch mechanism, a latch bolt, a dead bolt, a latch slide for retracting the latch bolt, two independent knob-controlled roll-backs coöperating with said latch slide, a lock slide, a key-controlled roll-back independent of but concentric with the first two roll-backs for coöperating with said lock slide, and means to couple the lock slide and the latch slide for the retraction of the latter by the further retraction of the former after the dead bolt is retracted.

20. In a lock and latch mechanism, a latch bolt, a dead bolt, two independent roll-backs for operating the latch slide, independent knobs respectively connected with said roll-backs, a thumb-piece cam for operating the dead bolt from the inner side of the door, a key spindle accessible from the outer side of the door for operating said dead bolt, a third roll-back carried by said spindle, and means of connection between the last mentioned roll-back and the thumb-piece cam for advancing and retracting the dead bolt through the medium of the key spindle and means to connect and disconnect said thumb-piece from said lock slide.

21. In a lock and latch mechanism, a latch bolt, a dead bolt, two independent roll-backs for operating the latch slide, independent knobs respectively connected with said roll-backs, a thumb-piece cam for operating the dead bolt from the inner side of the door, a key spindle accessible from the outer side of the door for operating said dead bolt, a third roll-back carried by said spindle, means of connection between the last mentioned roll-back and the thumb-piece cam for advancing and retracting the dead bolt through the medium of the key spindle, and means for uncoupling said means of connection from the thumb-piece cam and connecting said means with the latch slide to permit the retraction of the latch bolt by said key spindle after the dead bolt has been retracted.

22. In a lock and latch mechanism, inner and outer side plates, knobs carried thereby, an end plate carried by the outer side plate, a latch bolt protruding therethrough, a latch slide carried by the inner side plate, independent means of connection between said knobs and said latch slide, a dogging plate carried by the inner side plate for preventing operation of the outer knob, a pin projecting laterally from said dogging plate, a tilting lever carried by the outer side plate, operating buttons therefor, and means of connection between said tilting lever and said pin.

23. In a lock and latch mechanism, inner and outer side plates adjustable to and fro, knobs carried thereby and adjustable therewith, an end plate carried by the outer side plate, a latch bolt protruding therethrough, a latch slide carried by the inner side plate, independent means of connection between said knobs and said latch slide, a dogging plate carried by the inner side plate for preventing operation of the outer knob, a pin projecting laterally from said dogging plate, a tilting lever carried by the outer side plate, operating buttons therefor, and adjustable means of connection between said tilting lever and said pin.

HENRY G. VOIGHT.

Witnesses:
M. S. WIARD,
CHAS. E. RUSSELL.